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THE CHARACTER OF THE 1935 FIRE SEASON IN REGION ONE

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In the January 1935 issue of Applied Forestry Notes, Director Watts inaugurated the policy of making available to other forest protective agencies the rating of each fire season on the basis of the detailed measurements made by the Forest Service in Region One. The reasons for such ratings and the method of compilation were described in the issue of Applied Forestry Notes mentioned above.

The following description of the 1935 fire season is based upon more complete and more accurate data than have been available heretofore. The outstanding conclusion from these data is that there were numerous opportunities in 1935 for the development of disastrous conflagrations. That very few fires became large can be attributed only to the excellent protection supplied by all of the forest protective organizations, private, State, and Federal, in the Northern Rocky Mountain region.

The character of the 1935 fire season in Montana and northern Idaho was different from all others. It was a little later than usual in opening, and from four to six weeks later in closing. It also brought greater differences in danger, in different localities within the Region, than have been experienced since measurements of the factors of fire danger were begun.

July and August, which always include the peak of danger, rated this year as bringing 76% of worst probable danger on the ten fire Forests of Region One. This is just 10% less than occurred in 1934, and 2% more than in 1933. There was considerable

variation between Forests, however, in 1935. This is indicated by the following rating of the separate Forests showing the percentage of worst probable danger: Nezperce, 85%; Bitterroot, Lolo, and St. Joe, 80%; Clearwater and Flathead, 76%; Cabinet and Coeur d'Alene, 75%; Kootenai, 73%; and Kaniksu, 65%.

Similar ratings are not available for the eastern Montana Forests, but a Weather Bureau map of precipitation for the entire State shows that the rainfall deficiency which contributed to high danger on the Nezperce and Bitterroot extended easterly and northeasterly across the State. This drought, although it has not received so much publicity, rivals that of the preceding year. The few largest fires that occurred on the National Forests in this Region were on the Helena and Absaroka Forests within the dry belt shown by this map.

Additional Weather Bureau records for Helena show the occurrence of 13 days in July, August, and September that brought critical fire danger due to abnormally low humidity and high wind. On each of these 13 days the humidity dropped below 20% AND the wind reached a velocity of 10 m.p.h., or more. On eight of these days, the humidity was less than 15%. On July 27, with a temperature of 98½° and a wind velocity of 18 m.p.h., the humidity reached the extremely low point of 4%. This is the lowest relative humidity ever recorded in 55 years of measurement at the Helena Station. This combination of temperature, humidity, and wind constitutes an extremely critical forest fire day in any Region.

Considering all factors for the entire season and for the entire Region, 1935 rates as high average in the character of conditions with which the fire control organization had to contend. It was definitely not a critical season, neither was it easy or below average. Proof is found in the records of the daily measurements of wind (190 stations), humidity (90 stations), visibility (80 stations), and fuel moisture (65 stations) made on the ten fire Forests.

The occurrence of occasional days of critical danger on certain ranger districts, which was one very important characteristic of the 1935 fire season is not described sufficiently by the ratings of individual Forests given above. On August 10 the following stations reported Class Seven danger (this means such a combination of conditions as will cause fires to spread at rates of 1,500 to 2,000 acres per hour if fires are existing uncontrolled): All ranger districts except one on the Nezperce Forest, Moose Creek on the Bitterroot; Missoula, Lolo, and Seeley Lake Districts on the Lolo; Plains District on the Cabinet; Upper Swan District on the Flathead; and the Bungalow District on the Clearwater. In most cases, the conditions

that day included afternoon winds averaging from 15 to over 25 miles per hour, visibility restricted to four miles or less, relative humidities as low as 10%, and fuel moistures as low as 5% at several stations, and down to 4% at Castle Creek on the Nezperce. These are exactly the conditions that prevailed on August 3, 1931, when the Freeman Lake fire burned over 20,000 acres in 12 hours.

Other Class Seven days reported during the past season include July 27 on both the Lolo and Missoula Districts, July 30 on the Bonita District, and August 21 on the Seeley Lake District of the Lolo Forest. The Upper Swan District of the Flathead, on August 9, also rated as Class Seven when the afternoon wind averaged 13 miles per hour, the relative humidity was down to 13%, and the fuel moisture down to 4%.

To offset these extremely dangerous conditions, which had to be met even though they were temporary and locallized, the past fire season was relieved by good rains on most of the western Forests during the first ten days of July, during the middle ten days of August, on August 31, and on September 14 and 15. These breaks are extremely helpful if large fires are in progress, but there were no such fires on the western Forests this year.

Another helpful feature was the general absence of lightning storms from July 26 to August 31. The season as a whole rates as below average in the number of days occurence of lightning. The first ten days of September, however, brought far more than the usual number of storm days.

One feature of lightning danger during 1935 deserves special attention. This was the peak load of 433 lightning fires produced by the storms of July 22 to 26, on sixteen of the eighteen Forests in this Region. These storms caused 113 fires on the Nezperce, 93 on the Kaniksu, and 45 on the Clearwater Forest. The principal reason that none of these became large on the National Forests was the anticipatory action taken July 10-20 on the basis of fire danger measurements. If the protective organization had not been expanded when it was, it would have been impossible to have controlled all these fires before the fuels again dried to high inflammability on July 27, 28, 29, and 30.

The unusually late duration of fire danger, until October 11, warrants some description because it necessitated some exceptional presuppression expenditures. At Spokane, there has not been a September since 1888 which brought less rainfall than September 1935. Only 0.05 inch was reported for the entire month. At the Priest River Experiment Station only one other September, since 1911, has been drier than September 1935. Maximum temperatures

above 80° were common throughout the month and the fuels were, therefore, dry and inflammable. As a result of these conditions, many Forests reported Class Four fire danger during the last ten days of September and for a few days in October. With such danger known to be existent and with the added exposure to slash burning by local ranchers, which began October 1, many of the protective positions which had been discontinued with the occurrence of light rains on September 15 had to be remanned.

Considering all these conditions, especially the occurrence of Class Seven danger on 17 different ranger districts where conditions were ripe for another $250,000 fire like the Freeman Lake conflagration, the Region One National Forest records for 1935 show a high degree of efficiency of fire control.